

## Difficulty Analysis Factor of Online Learning Biology Subject in Grade XI MIPA

Zakiyati Salma<sup>1\*</sup>, Rahmawati Darusyamsu<sup>2</sup>

<sup>1</sup> Biology Education Study Program, Biology Department, Universitas Negeri Padang

<sup>2</sup> Biology Education Study Program, Biology Department, Universitas Negeri Padang

Email: <sup>1</sup> [zakiysaruma.07@gmail.com](mailto:zakiysaruma.07@gmail.com),

<sup>2</sup> [rahmabio@fmipa.unp.ac.id](mailto:rahmabio@fmipa.unp.ac.id)

\*Corresponding Author

### Article History

Received : 10-01-2021

Revised : 01-03-2021

Accepted : 23-04-2021

### Keywords:

Biology,  
Learning Difficulties,  
Online Learning.

### Article link



### Abstract

*In the implementation of learning online is encountered the problem that students are experiencing learning difficulties, one of them on the subjects of Biology. Learning difficulties of students are seen from the results of learning online tend to be lower than face-to-face. The purpose of this study was to determine the factors that cause the difficulty of students to learn Biology online in grade XI MIPA SMAN 1 Kecamatan Payakumbuh. The Population and sample in this research are all students of grade XI MIPA SMAN 1 Kecamatan Payakumbuh. The research method used is the descriptive method with the instrument data collection in the form of a questionnaire. The results showed that the factor of difficulty to learn Biology online in SMAN 1 Kecamatan Payakumbuh consists of internal and external factors. Internal factors affect the 61,18% dominate by psychological (62,17%). While external factors that 65,43%, dominate by infrastructure learning online (70,79%).*

©the authors

This is an open-access article under the CC-BY-NC-SA license

<https://creativecommons.org/licenses/by-nc-sa/4.0/>



## Introduction

Since declared outbreaks of the Novel Coronavirus 2019 (Covid-19) in Indonesia that lead to a pandemic. Indonesia's government issued related policies to prevent the spread of Covid-19 is increasingly widespread. Since the issuance of the policy work from home (WFH), the field of education also adopted the policy to divert a learning process that initially face-to-face into distance learning which is done online, as efforts to reduce social interaction which is expected to be able to break the chain of spread Covid-19 (Patimah, 2020: 100). In reality, many students are not yet accustomed fully to do the learning online, and also teachers are not yet fully proficient to teach online especially in the regions. Utami & Cahyono (2020: 25) states to change the concept of learning from the conventional face-to-face into an online system is not an easy task, because the thing that changed is the confidence and habits in teaching and learning has already become a habit in a long period.

Learning is a process of changes in behavior as a result of interaction in the environment to meet the necessities of life (Harahap, 2018: 71). Learning is the activity that requires principle and time in a process of education with the results of better behavior changed. Learning is not an outcome but a process or activity, not only to remember but the more extensive that experience. Through learning it will be obtained the knowledge, skills, habits, and attitude values as a basis to meet the needs that are required in everyday life (Rahmadani et al, 2017: 279). Learning is an effort or attempt which is made so that students experiencing a learning event, the process of meaningful learning will occur if the event occurs learning on the students (Lufri, 2010: 10).

Biology is a compulsory subject for the department of mathematics and science at the high school level and is a broadening and deepening of material science in education elementary and junior high school. Biology learning is a subject that discussing yourself and nature around as well as the efforts made

to maintain its existence. Through the study of Biology, students are expected to be able to understand themselves and also the surrounding environment. Biology is the form of facts, concepts, principles, laws, and theories (Lufri, 2010: 18). In the study of Biology, students are introduced to the environment of life both abstract and concrete as well as explained with the varying facts, concepts, principles laws, and theories.

Online learning is learning that not bound by time zones and locations, so distance is not a problem that inhibits learning. The advantages of learning online, students can access the material anytime, online learning also allows for the occurrence of real-time interaction between students and teacher (Anderson, 2008: 18). In carrying out the learning activities online, teachers are faced with many new challenges, both in innovation and in understanding the characteristics of students. There are students in the process of learning that can understand the material smoothly, but also many students who are experiencing difficulties in the learning process. A person was having trouble if he is not able to achieve a level and standard that has been determined, there is between the students easily understand specific subjects but have difficulty in other subjects.

According to Zamzami et al (2020: 124), learning difficulties are a disorder experienced by students both in terms of understanding or in delivering something orally or in writing that is unable to achieve the criteria set. General learning difficulties are characterized by obstacles that arise during learning and need more effort to overcome. Learning difficulties arise because students are not able to associate the new knowledge with the knowledge of the duration of the cause of unfamiliarity to a lesson (Rahmadani et al 2017: 279). Learning difficulties every learner is different and it is influenced by internal and external factors of the students. Internal factors are factors that come from within the students themselves, such as motivation, interest, and intelligence. While the external factors are the actors-factors that come not from the students, could be just the thing that comes from family, school, and scope of friendship.

The results of observations by the author and interview with the teacher the Biology of grade XI MIPA SMAN 1 Kec. Payakumbuh shows that the results of the study of Biology that are currently carried out online tend to be lower compared with face-to-face, this is indicated with a value that has not reached the minimum completeness criteria set by the school, which amounted to 75. The lack of interest of students to learn Biology is characterized by the amount of presence of the students that many absences and a delay in the gathering tasks. Students who are not accustomed to carrying out online learning are characterized by less active students in learning and the number of students who complain because they feel saturated.

Based on the explanation above, the writer is interested to analyze more about the factor analysis of difficulty to learn biology online in grade XI MIPA SMAN 1 Kec. Payakumbuh of the academic year 2020/2021.

## **Methods**

This research is descriptive research. Lufri and Ardi (2014: 22) states that descriptive research is research that describes a symptom, fact, events as well as events that are or have already happened how to describe it. The population in this research is all students of grade XI MIPA SMAN 1 Kecamatan Payakumbuh academic year 2020/2021 with the number of students 99 people. This research has been implemented in SMAN 1 Kecamatan Payakumbuh in November 2020.

The instrument used to collect data and information is in the form of a questionnaire. A questionnaire is a set of written statements given to the respondents to fill in (Sugiono. 2013: 142). This questionnaire was made by using a Likert scale with the categories (4) strongly agree, (3) agree, (2) disagree, and (1) strongly disagree and is a modification of the questionnaire Juliarti (2019). Questionnaires were distributed to all students of grade XI MIPA SMAN 1 Kecamatan Payakumbuh. This questionnaire was conducted for three days from the date 25-27 November 2020 with the number of subjects obtained was 63 people.

Scoring is done with the following conditions:

Positive statement

- a. alternative answer strongly agree (4) given a score of 4
- b. alternative answers agree (3) were given a score of 3
- c. alternative answers disagree (2) were given a score of 2
- d. alternative answers strongly disagree (1) was given a score of 1

Negative statements

- a. alternative answer strongly agree (4) given a score of 1
- b. alternative answers agree (3) were given a score of 2

- c. alternative answers disagree (2) given a score of 3  
d. alternative answers strongly disagree (1) was given a score of 4

**Table 1. Lattice Questionnaire Factor Analysis of Learning Difficulties**

Variable	Sub Variable	Indicator	No. Item	
			P+	P-
Internal	Physical	1. Health Factors	1	
		2. Defects Body		2
	Fatigue	1. Intelligence		3
		2. Attention		4
		3. Interest	5	
		4. Talent		6
		5. Motivation	7	
		6. Readiness	8	
External	Fatigue	1. Fatigue		9
		1. The Way Parents Educate	10	
	Family	2. The Atmosphere of The House		11
		3. The State of The Economy Family	12	
	School	1. Methods of Teaching		13
		2. The Relationship of Teacher with Students	14 15	
		3. School Discipline		16
		4. The State of Learning	17	
		5. This Method of Learning		18
		6. Home Assignments		
	Community	1. Mass Media		19
		2. The Form of Life of The Community		20
	Infrastructure	1. Aids		21
		2. Smooth		22
	Online	3. Support	23	
		4. Skills		24,25

(Source: Modifications Juliarti, 2019)

Data the results of the questionnaire are measured using a Likert scale so that the data obtained is in the form of quantitative. Then do the calculation of every grain of matter with the formula Zafri (1999: 83) as follows:

$$p = n/N \times 100\%$$

- P = the percentage of alternative answers  
N = the frequency of the alternative answers  
N = ideal score

After the obtained data in the form of a percentage then the result given criteria. The criteria used are as follows according to Riduwan (2007: 15) :

- 0% - 20% = very low  
21% - 40% = low  
41% - 60% = medium  
61% - 80% = high  
81% - 100% = very high

## Results and Discussion

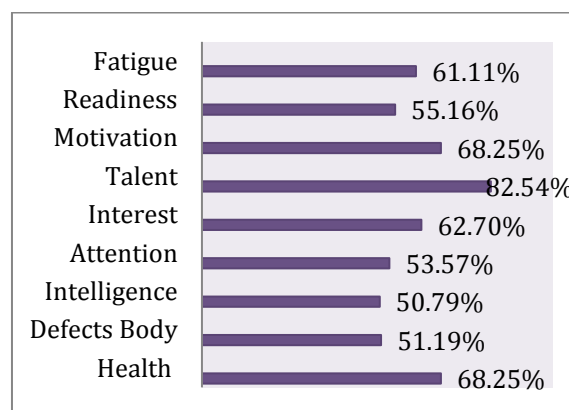
Based on the research that has been done obtained the results of the analysis about the factors that cause difficulties in learning Biology online there are internal factors and external factors.

## Internal Factors

**Table 2. Internal factors the Difficulty of Learning Biology Online**

No	Aspect	Percentage	Criteria
1	Physical	59,72%	Medium
2	Psychological	62,17%	High
3	Fatigue	61.11%	High
Average		61,18%	High

Internal factors are factors that originate from within a person. Internal factors that affect the difficulty of Biology online learning are composed of several aspects, namely physical, psychological, and fatigue.



**Figure 1. The Percentage of Internal Factors Difficulty to Learn Biology Online Each Indicator**

Factors physical or physiology is a factor yan related to the physical condition of the person such as health. The health of a person hurting their learning ability. Health indicators affect the difficulty of the study of Biology students online by 68,25% and disability by 51,19%. Vasmin et al (2020: 20) stated in learning that students should be healthy and the mind is not disturbed so that students do not experience difficulties in learning. The process of student learning will be interrupted if the condition of his body does not support it. Students are expected to maintain health by regulating a balanced diet, rest and exercise regularly (Syah, 2012: 147). The state of the body that primed will make the students can learn optimally.

Psychological factors are factors related to a person's psychic. In terms of learning the factors of the psychic effect, among others, interest, talent, intelligence, and motivation as well as readiness. Psychological factors have an effect of 62,17% as a factor of difficulty to Biology online learning, by the results of the study Firda (2019:75) states the factors the psychology of 60,69% with high criteria and is a factor in the cause of learning difficulties. For indicators of intelligence, influence amounted to 50.79% as a factor of difficulty to learn Biology online. Intelligence is the ability of an individual to be able to give an appropriate response and the appropriate or the ability to think abstract in an activity that is influenced by learning and also heredity (Yusuf, 2015: 311). Intelligence determines the success rate of students. The more intelligent a student then the greater the success of the students is in learning. Indicators' attention to the influence of 53, 57%, and classified as moderate. If students give attention to learning Biology which is in the process of learning online, then the difficulty of learning will be lower.

For the indicator of interest of 62,70% and is high as a factor of difficulty to learn Biology online, Zamzami et al (2020:131) state that the interest is someone passion of something, students who have a high interest to a lesson will be fun in the learning process. Talent is the ability of the individual which, if sharpened with an optimum will be a skill and facilitate individuals to achieve success (Cahyani et al, 2020: 129). Indicators of talent give an effect 82,54% with very high criteria in the cause of the learning difficulties of students.

Motivation gives the effect of 68,25% as a factor of the difficulty of studying Biology online and categorized high. Motivation is the power of motion in self-students to continue to do something until the goal is achieved. A high learning motivation can be seen from the perseverance and tenacity of students in learning. High motivation will encourage the students to the spirit in their learning. Readiness is the

ability of students in giving feedback. On learning their online readiness of students can be seen from the activities of students who prepare themselves before the learning is done by reading material or sources related to the material to be studied. Readiness to give effect to the difficulties of learning Biology online 55,16%. This is by the statement of Anantyarta and Mardiana (2020: 48) that learning online is not freely and started by the teacher by sharing the link via platform load of students lacking readiness in participating in learning.

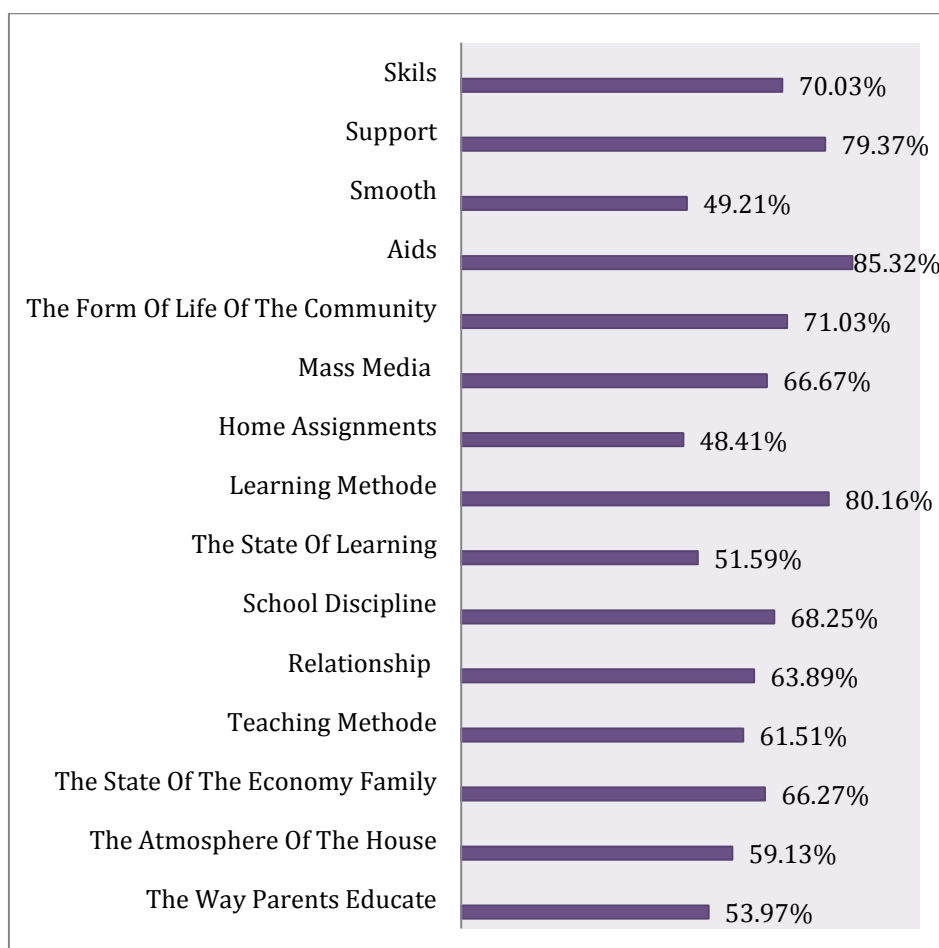
To the fatigue factor giving the influence of the high with the percentage that 61,11%. The fatigue factor in online learning is an activity of students the monotony that is sitting in front of a laptop or computer and this also will impact health, especially on the eyes.

### External Factors

The factors that come from outside the students that influence learning. External factors include family, school, community as well as the facilities and infrastructure in learning online.

**Table 3. External factors Difficulties in Learning Biology Online**

No	Factor	Percentage	Criteria
1	Family	59,79%	Medium
2	School	62,30%	High
3	Community	68.85%	High
4	facilities and infrastructure	70,79%	High
Average		65,43%	High



**Figure 2. Percentage External Factors Difficulties in Learning Biology Online Each Indicator**

Family is a center of learning and education but does not rule out the possibility that the family can also be a factor of difficulty in learning. Things that can affect, among others, are the attention of parents, family conditions, and also economic conditions. In online learning based on WFH, the family

environment has a considerable influence. The results of the research show that family factors have an effect of 59,79%. The influence of indicators of attention from parents achieve 53,97%, in this case, 65,07% of students stated that parents are less give their attention in learning. The role of parents in the success of students also plays an important role. Enough attention from the parents will make students excited about learning, so the learning process will be increased (Marisa, 2016: 4). The condition of the home affects the learning of students 59.13%, as much as 55,55% of students stated that their housing conditions are often crowded when the learning is done so that they have difficulty in concentration. To the state of the family economy in online learning, this has the effect of 66,27%, it is certainly related to the availability of facilities and infrastructure support for the implementation of the learning process online. Firda (2019: 76) states a conducive family environment will have an impact both on the learning activities of students and vice versa.

Learning is also influenced by school policy, especially in the conditions now is that learning can not be implemented in a normal but done online. The condition of the school gives the effect of 62,30%, for the mechanisms of learning online make students lazy to study and this affects 50.79% of students. The interaction of the educator with the students during the learning online gives the influence of 63,89%. The learning is done online, making the interaction between teacher and students is reduced, the methods and strategies used in learning are less varied and accompanied the task more make students get bored learning online (Noviati, 2020: 10).

For permanence and timeliness in the learning Biology online is done by the schedule to make students happy to learn and this gives the effect of 68,25%. For the implementation of learning and independent tasks in the house such as doing experiments and the like make the students understand the difficulties, because of the lack of understanding about the activities to be performed and the mechanism of its implementation and it gives the effect of 51,59%. For this method of learning gives the influence of a very high amounting to 80,16%, students stated that their difficulties in dividing the time to learn because it is done online because many of those who helped his parents work and like to procrastinate in doing the tasks assigned to the teacher. Assignments given by teachers online tend to be a lot more than when face-to-face and it gives the effect of 48,41%. The lack of understanding of the materials and also the time the process is restricted to make the students difficulty in doing their homework, understanding that the less a material will also affect the readiness of learners to the next material (Oktawirawan, 2020: 542).

The external factors that come from the environment of the community give the effect of 68,85% with high criteria. Indicators of the community environment have two indicators namely the mass media and the state around. For the mass media to give the effect of 66,67%, the students are more often looking for entertainment, and negligent in learning is influenced by the mass media. As for the state of the environment around the students to give effect 71,03%, this can be a form of promiscuity and also the conditions around the houses of the students. Not negated take the environment better intercommunication and interaction within the community have a significant influence in the process of learning students.

In terms of facilities and infrastructure that support learning online gives the effect of 70,79% with high criteria. This is by the statement (Amelia et al, 2020: 37), namely, the lack of facilities and infrastructure that are affected by economic conditions and unpreparedness will be the utilization of technology becomes one of the obstacles when learning online. The indicator aids in learning, the smoothness in the learning process, support from stakeholders, and also proficiency in technology. For a tool in learning online in the form of the availability of the device either the phone, computer, and the like gives the effect of 85,32%, because learning online can be done well if the device is used in the study are also in good condition.

For smooth in the online learning course related to the internet either in the form of the provision of internet quota or the quality of the internet connection, in this case, the interruption of the internet connection gives the effect of 49,21% with the medium category. This is by research Sadikin and Hamidah (2020: 218) states many students have difficulty signal because it is located on the area of the signal/ internet connection low. The support of stakeholders both from the school and the government gives the effect of 79.37%. As for the skills of students in using technology and the access it gives the effect of 70,03%, this is consistent with that presented in the research Fauza et al (2020: 52) that, students are not yet familiar with learning online so that the students are required to learn is self-taught.

### **Conclusions and Recommendations**

Based on the results of the research that has been done then found a conclusion about the factor of difficulty Biology online learning in grade XI MIPA SMAN 1 Kecamatan Payakumbuh is as follows.

Factors causing difficulties in learning Biology online grade XI MIPA SMAN 1 Kecamatan Payakumbuh composed of factors internal by 61,18% and external factors of 65,43%. It is seen that



external factors make a greater contribution compared to internal factors. Indicators of internal factors in the form of health, disability, intelligence, attention, interest, talent, motivation, readiness, and fatigue. The indicator of external factors that affect the is the attention of parents, housing conditions, the state of the economy, methods of teaching, interaction online, school discipline, the state of learning, methods of learning, home assignments, mass media, the state of the environment, aids, the smoothness of the connection, the support of stakeholders and the proficiency in utilizing technology.

Internal factors are dominant causes of difficulty to learn Biology online in grade XI MIPA SMAN 1 Kecamatan Payakumbuh is a psychological factor with the indicators of talent, namely the interest in the subject matter of 82,54% (very high). To external factor dominant cause difficulties Biology online learning is the availability of tools to access learning online that is equal to 85,32% (very high).

## References

- Amelia, A., Hasanah, U., Rahman, H., & Putra, A. M. (2020). Analisis Keefektifan Pembelajaran Online Di Masa Pandemi COVID-19. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*, 2(1), 28-37.
- Anantyarta, P., & Mardiana, E. (2020). Learning Media in Pandemic: Autoplay Media Studio Added Stretching Motion to Evaluation Digestive System Subject. *Bioeducation Journal*, 4(2), 47-57.
- Anderson, T., (Ed.). (2008). *The Theory and Practice of Online Learning*. Canada: Athabasca University Press.
- Cahyani, A., Listiana, I. D., & Larasati, S. P. D. (2020). Motivasi Belajar Siswa SMA pada Pembelajaran Daring di Masa Pandemi Covid-19. *IQ (Ilmu Al-qur'an): Jurnal Pendidikan Islam*, 3(01), 123-140. DOI: <https://doi.org/10.37542/iq.v3i01.57>
- Fauza, N., Ernidawati, E., & Syaflita, D. (2020). Difficulty Analysis of Physics Students in Learning Online during Pandemic Covid-19. *Jurnal Geliga Sains: Jurnal Pendidikan Fisika*, 8(1), 49-54. DOI: <https://doi.org/10.31258/jgs.8.1.49-54>
- Firda, A. (2019). Analisis Kesulitan Belajar Siswa SMA pada Materi Kultur Jaringan Tumbuhan. *Bio-Lectura*, 6(1). DOI: <https://doi.org/10.31849/bl.v6i2.3571>
- Harahap, F. D. S. (2018). "Analisis Kesulitan Belajar Siswa pada Materi Virus di Kelas X MIPA SMA Negeri 1 Rantau Selatan Tahun Pembelajaran 2017/2018", *Disertasi*, Universitas Negeri Medan. DOI: <https://doi.org/10.24114/jpp.v6i2.10141>
- Juliarti, Desni. (2019). Analisis Faktor-Faktor Penyebab Kesulitan Belajar Biologi Siswa Kelas XI IPS SMA N 9 Padang (*Doctoral Dissertation*), STKIP PGRI Sumatera Barat).
- Lufri dan Ardi. (2014). *Metodologi Penelitian*. Padang: Universitas Negeri Padang. Lufri. (2010). *Strategi Pembelajaran Biologi Teori Praktik dan Penelitian*. Padang: Universitas Negeri padang.
- Marisa, P. (2016). Analisis Kesulitan Belajar Siswa pada Materi Tumbuhan kelas X di SMAN 1 Rambah Hilir Tahun Pembelajaran 2014/2015. *Jurnal Ilmiah Mahasiswa FKIP Prodi Biologi*, 2(1).
- Noviati, W. (2020). Kesulitan Pembelajaran Online Mahasiswa Pendidikan Biologi di Tengah Pandemi Covid19. *Jurnal Pendidikan MIPA*, 10(1), 7-11. DOI: <https://doi.org/10.37630/jpm.v10i1.258>
- Oktawirawan, D. H. (2020). Faktor Pemicu Kecemasan Siswa dalam Melakukan Pembelajaran Daring di Masa Pandemi Covid-19. *Jurnal Ilmiah Universitas Batanghari Jambi*, 20(2), 541-544. DOI: <https://doi.org/10.33087/jiubj.v20i2.932>
- Patimah, S. (2020). Analisis Aktivitas Pembelajaran Matematika pada Materi Pecahan Campuran Berbasis Daring (Melalui Aplikasi Whatsapp) di Masa Pandemi Covid-19 Pada Siswa Kelas 4 SDN PAKUJAJAR CBM. *JKPD (Jurnal Kajian Pendidikan Dasar)*, 5(2), 98-105.
- Rahmadani, W., Harahap, F., & Gultom, T. (2017). Analisis Faktor Kesulitan Belajar Biologi Siswa Materi Bioteknologi di SMA Negeri Se-Kota Medan. *Jurnal Pendidikan Biologi*, 6(2), 279-285. DOI: <https://doi.org/10.24114/jpb.v6i2.6546>

- Riduwan. (2007). *Skala Pengukuran Variabel-Variabel Penelitian*. Bandung: Alfabeta.
- Sadikin, A., & Hamidah, A. (2020). Pembelajaran Daring di Tengah Wabah Covid-19:(Online Learning in the Middle of the Covid-19 Pandemic). *Biodik*, 6(2), 214-224. DOI: <https://doi.org/10.22437/bio.v6i2.9759>
- Sugiyono. (2013). *Metode Penelitian Kuantitatif Kualitataif Dan R&D*. Bandung: Alfabeta.
- Syah, M. (2012). *Psikologi Belajar*. Jakarta : Rajawali Press.
- Utami, Y. P., & Cahyono, D. A. D. (2020). Study At Home: Analisis Kesulitan Belajar Matematika pada Proses Pembelajaran Daring. *Jurnal Ilmiah Matematika Realistik*, 1(1), 20-26.
- Vasmin, M. E., Syafriati, Y. M., Sada, M., & Nurfadilah, N. (2020). Analisis Faktor Kesulitan Peserta Didik dalam Proses Pembelajaran Biologi pada Implementasi Kurikulum 2013. *Jurnal Inovasi Pembelajaran Biologi*, 1(2), 14-23.
- Yusuf, A. M. (2015). *Assesmen dan Evaluasi Pendidikan*. Jakarta: Kencana.
- Zafri. (1999). *Metode Penelitian Pendidikan*. Padang: Universitas Negeri Padang.
- Zamzami, Z., Sakdiah, S., & Nurbaiza, N. (2020). Analisis Faktor Kesulitan Belajar Mata Pelajaran Biologi Siswa Kelas X SMA NEGERI 1 Krueng Barona Jaya Kabupaten Aceh Besar. *Jurnal Dedikasi Pendidikan*, 4(1), 123-133.